SEQUENCE LISTING

<110> LaRosa, Gregory J.
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<120> HUMANIZED ANTI-CCR2 ANTIBODIES AND METHODS OF USE THEREFOR

<130> 1855.1052-029

<150> 09/840,459
<151> 2001-04-23

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<151> 2001-02-02

<150> 09/497,625
<151> 2000-02-03

<150> 09/359,193
<151> 1999-07-22

<150> 09/121,781
<151> 1998-07-23

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<400> 5
Met Pro Met Gly Ser Leu Gln Pro Leu Ala Thr Leu Tyr Leu Leu Gly
1 5 10 15
Met Leu Val Ala Ser Val Leu Ala
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<400> 6
ggggatccag aaaccatgcc catggggtct ctgcaaccgc tggccacctt gtacctgctg 60

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<400> 7
gccaccttgt acctgctggg gatgctggtc gcttccgtgc tagcgatgct gtccacatct 60
cgttc 65

<210> 8
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<220>
<223> Primer

<400> 8
gacgaccagc atgttgcc 18

<210> 9
<211> 112
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<213> Mus musculus

<400> 9

Asp	Val	Val	Met	Thr	Gln	Thr	Pro	Leu	Thr	Leu	Ser	Val	Thr	Val	Gly
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His	Pro	Ala	Ser	Ile	Ser	Cys	Lys	Ser	Ser	Gln	Ser	Leu	Leu	Asp	Ser
		20					25					30			
Asp	Gly	Lys	Thr	Phe	Leu	Asn	Trp	Leu	Leu	Gln	Arg	Pro	Gly	Gln	Ser
	35					40					45				
Pro	Lys	Arg	Leu	Ile	Tyr	Leu	Val	Ser	Lys	Leu	Asp	Ser	Gly	Val	Pro
50					55					60					
Asp	Arg	Phe	Thr	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile
65				70					75						80
Ser	Arg	Val	Glu	Ala	Glu	Asp	Leu	Gly	Val	Tyr	Tyr	Cys	Trp	Gln	Gly
			85					90					95		
Thr	His	Phe	Pro	Tyr	Thr	Phe	Gly	Gly	Gly	Thr	Lys	Leu	Glu	Ile	Lys
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<212> PRT
<213> Mus musculus

<400> 10

Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Lys	Gly
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Ser	Leu	Lys	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Ser	Phe	Asn	Ala	Tyr
		20					25					30			
Ala	Met	Asn	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val
	35					40					45				
Ala	Arg	Ile	Arg	Thr	Lys	Asn	Asn	Asn	Tyr	Ala	Thr	Tyr	Tyr	Ala	Asp
50					55					60					
Ser	Val	Lys	Asp	Arg	Tyr	Thr	Ile	Ser	Arg	Asp	Asp	Ser	Glu	Ser	Met
65				70					75						80
Leu	Phe	Leu	Gln	Met	Asn	Asn	Leu	Lys	Thr	Glu	Asp	Thr	Ala	Met	Tyr
			85					90					95		
Tyr	Cys	Val	Thr	Phe	Tyr	Gly	Asn	Gly	Val	Trp	Gly	Thr	Gly	Thr	Thr
		100					105					110			
Val	Thr	Val	Ser	Ser											
	115														

<210> 11
<211> 111

<212> PRT
<213> Homo sapiens

<400> 11
Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30
Asp Gly Asn Thr Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
35 40 45
Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Gly
85 90 95
Thr His Trp Pro Phe Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile
100 105 110

<210> 12
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence

<400> 12
Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
20 25 30
Asp Gly Lys Thr Phe Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
35 40 45
Pro Arg Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Trp Gln Gly
85 90 95
Thr His Phe Pro Tyr Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
100 105 110

<210> 13
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence

<400> 13
Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
20 25 30

```
 Asp Gly Lys Thr Phe Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
         35                  40                  45
 Pro Arg Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Trp Gln Gly
                 85                  90                  95
 Thr His Phe Pro Tyr Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
             100                 105                 110

<210> 14
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence

<400> 14
 Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
  1               5                  10                  15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
             20                  25                  30
 Asp Gly Lys Thr Phe Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
         35                  40                  45
 Pro Arg Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Trp Gln Gly
                 85                  90                  95
 Thr His Phe Pro Tyr Thr Phe Gly Gly Gly Thr Arg Leu Glu Ile Lys
             100                 105                 110

<210> 15
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence

<400> 15
 Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
  1               5                  10                  15
 His Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
             20                  25                  30
 Asp Gly Lys Thr Phe Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
         35                  40                  45
 Pro Arg Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Trp Gln Gly
                 85                  90                  95
```

Thr His Phe Pro Tyr Thr Phe Gly Gly Gly Thr Arg Leu Glu Ile Lys
100 105 110

<210> 16
<211> 119
<212> PRT
<213> Homo sapiens

<400> 16
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Ala
20 25 30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Gly Arg Ile Lys Ser Lys Thr Asp Gly Gly Thr Thr Asp Tyr Ala Ala
50 55 60
Pro Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
65 70 75 80
Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
85 90 95
Tyr Cys Thr Thr Asp Ser Leu Pro Pro His Arg Val Trp Gly Gln Gly
100 105 110
Thr Leu Val Thr Val Ser Ser
115

<210> 17
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence

<400> 17
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ala Tyr
20 25 30
Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Gly Arg Ile Arg Thr Lys Asn Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
50 55 60
Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
65 70 75 80
Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
85 90 95
Tyr Cys Thr Thr Phe Tyr Gly Asn Gly Val Trp Gly Gln Gly Thr Leu
100 105 110
Val Thr Val Ser Ser
115

<210> 18
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence

<400> 18
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe Asn Ala Tyr
20 25 30
Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Gly Arg Ile Arg Thr Lys Asn Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
50 55 60
Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
65 70 75 80
Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
85 90 95
Tyr Cys Thr Thr Phe Tyr Gly Asn Gly Val Trp Gly Gln Gly Thr Leu
100 105 110
Val Thr Val Ser Ser
115

<210> 19
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence

<400> 19
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe Asn Ala Tyr
20 25 30
Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ala Arg Ile Arg Thr Lys Asn Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
50 55 60
Ser Val Lys Asp Arg Tyr Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
65 70 75 80
Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
85 90 95
Tyr Cys Thr Thr Phe Tyr Gly Asn Gly Val Trp Gly Gln Gly Thr Leu
100 105 110
Val Thr Val Ser Ser
115

<210> 20
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence

<400> 20

```
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
  1               5                  10                  15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe Asn Ala Tyr
             20                  25                  30
 Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45
 Ala Arg Ile Arg Thr Lys Asn Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
     50                  55                  60
 Ser Val Lys Asp Arg Tyr Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
 65                  70                  75                  80
 Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
                 85                  90                  95
 Tyr Cys Val Thr Phe Tyr Gly Asn Gly Val Trp Gly Gln Gly Thr Leu
             100                 105                 110
 Val Thr Val Ser Ser
         115
```

<210> 21
<211> 100
<212> PRT
<213> Mus musculus

<400> 21

```
 Asp Val Val Met Thr Gln Thr Pro Leu Thr Leu Ser Val Thr Val Gly
  1               5                  10                  15
 His Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
             20                  25                  30
 Asp Gly Lys Thr Phe Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
         35                  40                  45
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Trp Gln Gly
                 85                  90                  95
 Thr His Phe Pro
             100
```

<210> 22
<211> 100
<212> PRT
<213> Mus musculus

<400> 22

```
 Asp Val Val Met Thr Gln Thr Pro Leu Thr Leu Ser Val Thr Ile Gly
  1               5                  10                  15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
             20                  25                  30
 Asp Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
         35                  40                  45
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Trp Gln Gly
                 85                  90                  95
```

Thr His Phe Pro
100

<210> 23
<211> 100
<212> PRT
<213> Mus musculus

<400> 23
Asp Val Val Met Thr Gln Thr Pro Leu Thr Leu Ser Val Thr Ile Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser
20 25 30
Asn Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
35 40 45
Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
50 55 60
Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Val Gln Gly
85 90 95
Thr His Phe Pro
100

<210> 24
<211> 100
<212> PRT
<213> Mus musculus

<220>
<221> VARIANT
<222> (1)...(100)
<223> Xaa = Any Amino Acid

<400> 24
Asp Val Val Met Thr Gln Xaa Leu His Ser Leu Ser Val Thr Ile Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser
20 25 30
Asn Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Arg Pro Val Gln Pro
35 40 45
Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Tyr Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Xaa Pro Glu Asp Leu Gly Val Tyr Xaa Cys Met Gln Asp
85 90 95
Thr His Phe Pro
100

<210> 25
<211> 100
<212> PRT
<213> Mus musculus

<400> 25

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 Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
  1               5                  10                  15
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
             20                  25                  30
 Asn Gly Asn Thr Tyr Leu Tyr Trp Tyr Leu Gln Lys Pro Gly Gln Ser
         35                  40                  45
 Pro Lys Leu Leu Ile Tyr Arg Val Ser Asn Arg Phe Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Phe Gln Gly
                 85                  90                  95
 Thr His Val Pro
             100
```

<210> 26
<211> 100
<212> PRT
<213> Mus musculus

<400> 26

```
 Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
  1               5                  10                  15
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser
             20                  25                  30
 Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser
         35                  40                  45
 Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Leu Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly
                 85                  90                  95
 Ser His Val Pro
             100
```

<210> 27
<211> 100
<212> PRT
<213> Mus musculus

<400> 27

```
 Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
  1               5                  10                  15
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
             20                  25                  30
 Asn Gly Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
         35                  40                  45
 Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Ser Gln Ser
                 85                  90                  95
 Thr His Val Pro
             100
```

<210> 28
<211> 100
<212> PRT
<213> Mus musculus

<400> 28
Asp Val Leu Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
1 5 10 15
Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser
20 25 30
Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45
Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly
85 90 95
Ser His Val Pro
100

<210> 29
<211> 100
<212> PRT
<213> Mus musculus

<400> 29
Asp Ala Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
1 5 10 15
Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Glu Asn Ser
20 25 30
Asn Gly Asn Thr Tyr Leu Asn Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45
Pro Gln Leu Leu Ile Tyr Arg Val Ser Asn Arg Phe Ser Gly Val Leu
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Leu Gln Val
85 90 95
Thr His Val Pro
100

<210> 30
<211> 100
<212> PRT
<213> Mus musculus

<400> 30
Asp Val Leu Leu Thr Gln Thr Pro Leu Phe Leu Pro Val Ser Leu Gly
1 5 10 15
Asp Gln Ala Ser Ile Ser Cys Ser Ser Ser Gln Ser Leu Val His Ser
20 25 30
Asn Gly Asn Tyr Tyr Leu Glu Trp His Leu Gln Lys Ser Gly Gln Ser
35 40 45
Leu Gln Leu Leu Ile Tyr Glu Val Ser Lys Arg His Ser Gly Val Pro
50 55 60

```
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Pro Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly
                 85                  90                  95
 Thr His Leu Pro
             100

<210> 31
<211> 100
<212> PRT
<213> Mus musculus

<400> 31
 Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly
  1               5                  10                  15
 Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
             20                  25                  30
 Ser Gly Asn Thr Tyr Leu Tyr Trp Phe Leu Gln Lys Pro Gly Gln Ser
         35                  40                  45
 Pro Gln Leu Leu Ile Tyr Tyr Ile Ser Asn Leu Ala Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Gly
                 85                  90                  95
 Leu Glu Tyr Pro
             100

<210> 32
<211> 100
<212> PRT
<213> Mus musculus

<400> 32
 Asp Ile Val Ile Thr Gln Asp Glu Leu Ser Asn Pro Val Thr Ser Gly
  1               5                  10                  15
 Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu Tyr Lys
             20                  25                  30
 Asp Gly Lys Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Gln Ser
         35                  40                  45
 Pro Gln Leu Leu Ile Tyr Leu Met Ser Thr Arg Ala Ser Gly Val Ser
     50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile
 65                  70                  75                  80
 Ser Arg Val Lys Ala Glu Asp Val Gly Val Tyr Tyr Cys Gln Gln Leu
                 85                  90                  95
 Val Glu Tyr Pro
             100

<210> 33
<211> 100
<212> PRT
<213> Mus musculus

<400> 33
 Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly
  1               5                  10                  15
```

```
 Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
             20                  25                  30
 Asn Gly Ile Thr Tyr Leu Tyr Trp Tyr Leu Gln Lys Pro Gly Gln Ser
         35                  40                  45
 Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn
                 85                  90                  95
 Leu Glu Leu Pro
             100
```

<210> 34
<211> 101
<212> PRT
<213> Mus musculus

<400> 34

```
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Lys Gly
  1               5                  10                  15
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe Asn Ala Tyr
             20                  25                  30
 Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45
 Ala Arg Ile Arg Thr Lys Asn Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
     50                  55                  60
 Ser Val Lys Asp Arg Tyr Thr Ile Ser Arg Asp Asp Ser Glu Ser Met
 65                  70                  75                  80
 Leu Phe Leu Gln Met Asn Asn Leu Lys Thr Glu Asp Thr Ala Met Tyr
                 85                  90                  95
 Tyr Cys Val Thr Phe
             100
```

<210> 35
<211> 100
<212> PRT
<213> Mus musculus

<400> 35

```
 Glu Val Gln Leu Val Glu Val Trp Trp Arg Met Val Gln Pro Lys Gly
  1               5                  10                  15
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr
             20                  25                  30
 Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45
 Ala Arg Ile Arg Ser Lys Ser Ser Asn Tyr Ala Thr Tyr Tyr Ala Asp
     50                  55                  60
 Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Gln Ser Met
 65                  70                  75                  80
 Leu Tyr Leu Gln Met Asn Asn Leu Lys Thr Glu Asp Thr Ala Met Tyr
                 85                  90                  95
 Tyr Cys Val Ile
             100
```

<210> 36
<211> 100

<212> PRT
<213> Mus musculus

<400> 36
Glu Val Lys Leu Glu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
20 25 30
Trp Met Ser Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
35 40 45
Ala Gln Ile Arg Leu Lys Ser Asp Asn Tyr Ala Thr His Tyr Ala Glu
50 55 60
Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
65 70 75 80
Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
85 90 95
Tyr Cys Thr Gly
100

<210> 37
<211> 100
<212> PRT
<213> Mus musculus

<400> 37
Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Thr Asp Tyr
20 25 30
Tyr Met Ser Trp Val Arg Gln Pro Pro Gly Lys Ala Leu Glu Trp Leu
35 40 45
Gly Phe Ile Arg Asn Lys Ala Asn Gly Tyr Thr Thr Glu Tyr Ser Ala
50 55 60
Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Gln Ser Ile
65 70 75 80
Leu Tyr Leu Gln Met Asn Thr Leu Arg Ala Glu Asp Ser Ala Thr Tyr
85 90 95
Tyr Cys Ala Arg
100

<210> 38
<211> 98
<212> PRT
<213> Mus musculus

<400> 38
Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
1 5 10 15
Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30
Thr Met Ser Trp Val Arg Gln Ser Pro Glu Lys Arg Leu Glu Trp Val
35 40 45
Ala Thr Ile Ser Ser Gly Gly Ser Tyr Thr Tyr Tyr Pro Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
65 70 75 80

```
 Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys
                 85                  90                  95
 Thr Arg


<210> 39
<211> 98
<212> PRT
<213> Mus musculus

<400> 39
 Asp Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
  1               5                  10                  15
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
             20                  25                  30
 Thr Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
         35                  40                  45
 Ala Thr Ile Ser Ser Gly Gly Ser Tyr Thr Tyr Tyr Pro Asp Ser Val
     50                  55                  60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
 65                  70                  75                  80
 Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys
                 85                  90                  95
 Thr Arg


<210> 40
<211> 98
<212> PRT
<213> Mus musculus

<220>
<221> VARIANT
<222> (1)...(98)
<223> Xaa = Any Amino Acid

<400> 40
 Glu Leu Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
  1               5                  10                  15
 Ser Arg Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
             20                  25                  30
 Ala Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
         35                  40                  45
 Ala Ala Ile Ser Thr Asp Gly Ser Phe Ile Tyr Xaa Pro Asp Thr Val
     50                  55                  60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Phe
 65                  70                  75                  80
 Leu Gln Met Ser Ser Leu Arg Tyr Glu Asp Thr Ala Met Tyr Tyr Cys
                 85                  90                  95
 Leu Arg


<210> 41
<211> 98
<212> PRT
<213> Mus musculus
```

<400> 41
Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Lys Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Tyr
20 25 30
Tyr Met Tyr Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
35 40 45
Ala Tyr Ile Ser Asn Gly Gly Gly Ser Thr Tyr Tyr Pro Asp Thr Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
65 70 75 80
Leu Gln Met Ser Arg Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys
85 90 95
Ala Arg

<210> 42
<211> 101
<212> PRT
<213> Mus musculus

<400> 42
Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Ala
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ser Ser Gly Phe Thr Phe Thr Asp Tyr
20 25 30
Tyr Met Asn Trp Val His Arg Pro Pro Gly Lys Pro Leu Glu Trp Leu
35 40 45
Ala Leu Ile Arg Asn Lys Ala Asn Gly Tyr Ile Thr Glu Tyr Ser Ala
50 55 60
Ser Met Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Gln Ser Ile
65 70 75 80
Leu Tyr Leu Gln Met Asn Thr Leu Ser Thr Glu Asp Ser Ala Thr Tyr
85 90 95
Tyr Cys Ala Arg Asp
100

<210> 43
<211> 100
<212> PRT
<213> Mus musculus

<400> 43
Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Phe
20 25 30
Tyr Met Glu Trp Val Arg Gln Pro Pro Gly Lys Arg Leu Glu Trp Ile
35 40 45
Ala Ala Ser Arg Asn Lys Ala Asn Asp Tyr Thr Thr Glu Tyr Ser Ala
50 55 60
Ser Val Lys Gly Arg Phe Ile Val Ser Arg Asp Thr Ser Gln Ser Ile
65 70 75 80
Leu Tyr Leu Gln Met Asn Ala Leu Arg Ala Glu Asp Thr Ala Ile Tyr
85 90 95
Tyr Cys Ala Arg
100

<210> 44
<211> 98
<212> PRT
<213> Mus musculus

<400> 44
Glu Val Met Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
1 5 10 15
Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30
Thr Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
35 40 45
Ala Thr Ile Ser Ser Gly Gly Gly Asn Thr Tyr Tyr Pro Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Asn Leu Tyr
65 70 75 80
Leu Gln Met Ser Ser Leu Arg Ser Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95
Ala Arg

<210> 45
<211> 98
<212> PRT
<213> Mus musculus

<400> 45
Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
1 5 10 15
Ser Leu Lys Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30
Gly Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
35 40 45
Ala Thr Ile Ser Gly Gly Gly Ser Tyr Thr Tyr Tyr Pro Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Asn Leu Tyr
65 70 75 80
Leu Gln Met Ser Ser Leu Arg Ser Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95
Ala Arg

<210> 46
<211> 101
<212> PRT
<213> Mus musculus

<400> 46
Glu Val Lys Leu Met Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Ala
1 5 10 15
Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Thr Phe Thr Asp Tyr
20 25 30
Tyr Met Ser Trp Val Arg Gln Leu Pro Arg Lys Ser Pro Glu Trp Leu
35 40 45
Ala Leu Ile Arg Asn Lys Ala Asn Gly Tyr Thr Thr Glu Tyr Ser Ala
50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Gln Asn Ile
65 70 75 80
Leu Tyr Leu Gln Met Asn Thr Leu Arg Ala Glu Ala Ser Ala Thr Tyr
85 90 95
Tyr Cys Ala Lys Asp
100

<210> 47
<211> 98
<212> PRT
<213> Mus musculus

<400> 47
Glu Val Lys Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Asp Phe Ser Arg Tyr
20 25 30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile
35 40 45
Gly Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu
50 55 60
Lys Asp Lys Phe Ile Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
65 70 75 80
Leu Gln Met Ser Lys Val Arg Ser Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95
Ala Arg

<210> 48
<211> 89
<212> PRT
<213> Mus musculus

<400> 48
Gly Leu Val Gln Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Ala Ser
1 5 10 15
Gly Phe Thr Phe Ser Ser Tyr Gly Met Ser Trp Val Arg Gln Thr Pro
20 25 30
Asp Lys Arg Leu Glu Leu Val Ala Thr Ile Asn Ser Asn Gly Gly Ser
35 40 45
Thr Tyr Tyr Pro Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
50 55 60
Asn Ala Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Lys Ser Glu
65 70 75 80
Asp Thr Ala Met Tyr Tyr Cys Ala Arg
85

<210> 49
<211> 89
<212> PRT
<213> Mus musculus

<400> 49
Gly Leu Val Lys Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Ala Ser
1 5 10 15
Gly Phe Thr Phe Ser Ser Tyr Ala Met Ser Trp Val Arg Gln Thr Pro
20 25 30

Glu Lys Arg Leu Glu Trp Val Ala Thr Ile Ser Ser Gly Gly Ser Tyr
35 40 45
Thr Tyr Tyr Pro Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
50 55 60
Asn Ala Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Arg Ser Glu
65 70 75 80
Asp Thr Ala Met Tyr Tyr Cys Ala Arg
85

<210> 50
<211> 89
<212> PRT
<213> Mus musculus

<400> 50
Gly Leu Val Gln Pro Gly Gly Ser Arg Lys Leu Ser Cys Ala Ala Ser
1 5 10 15
Gly Phe Thr Phe Ser Ser Phe Gly Met His Trp Val Arg Gln Ala Pro
20 25 30
Glu Lys Gly Leu Glu Trp Val Ala Tyr Ile Ser Ser Gly Ser Ser Thr
35 40 45
Ile Tyr Tyr Ala Asp Thr Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
50 55 60
Asn Pro Lys Asn Thr Leu Phe Leu Gln Met Thr Ser Leu Arg Ser Glu
65 70 75 80
Asp Thr Ala Met Tyr Tyr Cys Ala Arg
85

<210> 51
<211> 88
<212> PRT
<213> Mus musculus

<400> 51
Gly Leu Val Lys Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Ala Ser
1 5 10 15
Gly Phe Thr Phe Ser Ser Tyr Ala Met Ser Trp Val Arg Gln Thr Pro
20 25 30
Glu Lys Arg Leu Glu Trp Val Ala Ser Ile Ser Ser Gly Gly Ser Thr
35 40 45
Tyr Tyr Pro Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn
50 55 60
Ala Arg Asn Ile Leu Tyr Leu Gln Met Ser Ser Leu Arg Ser Glu Asp
65 70 75 80
Thr Ala Met Tyr Tyr Cys Ala Arg
85

<210> 52
<211> 98
<212> PRT
<213> Mus musculus

<400> 52
Glu Val Lys Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Asn Leu Ser Cys Ala Ala Ser Gly Phe Asp Phe Ser Arg Tyr
20 25 30

```
 Trp Met Ser Trp Ala Arg Gln Ala Pro Gly Lys Gly Gln Glu Trp Ile
         35                  40                  45
 Gly Glu Ile Asn Pro Gly Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu
     50                  55                  60
 Lys Asp Lys Phe Ile Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
 65                  70                  75                  80
 Leu Gln Met Ser Lys Val Arg Ser Glu Asp Thr Ala Leu Tyr Tyr Cys
                 85                  90                  95
 Ala Arg
```

<210> 53
<211> 87
<212> PRT
<213> Mus musculus

<400> 53

```
 Val Lys Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe
  1               5                  10                  15
 Thr Phe Ser Ser Tyr Thr Met Ser Trp Val Arg Gln Thr Pro Glu Lys
             20                  25                  30
 Arg Leu Glu Trp Val Ala Tyr Ile Ser Asn Gly Gly Gly Ser Thr Tyr
         35                  40                  45
 Tyr Pro Asp Thr Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala
     50                  55                  60
 Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr
 65                  70                  75                  80
 Ala Met Tyr Tyr Cys Ala Arg
                 85
```

<210> 54
<211> 112
<212> PRT
<213> Homo sapiens

<400> 54

```
 Asp Ile Gln Leu Thr Gln Ser Pro Leu Thr Leu Ser Val Thr Ile Gly
  1               5                  10                  15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
             20                  25                  30
 Asp Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
         35                  40                  45
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Asp Asp Leu Gly Val Tyr Tyr Cys Trp Gln Gly
                 85                  90                  95
 Thr His Phe Pro Gln Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
             100                 105                 110
```

<210> 55
<211> 112
<212> PRT
<213> Homo sapiens

<400> 55

```
 Asp Val Val Leu Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
  1               5                  10                  15
 Gln Pro Ala Ser Ile Ser Cys Arg Ser Asp Gln Ser Leu Val Tyr Ser
             20                  25                  30
 Asp Gly Lys Thr Tyr Leu Asn Trp Tyr Gln Gln Arg Pro Gly Gln Ser
         35                  40                  45
 Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Gly
                 85                  90                  95
 Thr His Trp Pro Gly Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
             100                 105                 110
```

<210> 56
<211> 112
<212> PRT
<213> Homo sapiens

<400> 56

```
 Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
  1               5                  10                  15
 Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val Tyr Ser
             20                  25                  30
 Asp Gly Asn Thr Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
         35                  40                  45
 Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Gly
                 85                  90                  95
 Thr His Trp Ser Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
             100                 105                 110
```

<210> 57
<211> 112
<212> PRT
<213> Homo sapiens

<400> 57

```
 Asp Val Val Val Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
  1               5                  10                  15
 Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Leu Ser Leu Val Asp Ser
             20                  25                  30
 Asp Gly Asn Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Gln Ser
         35                  40                  45
 Pro Arg Arg Leu Ile Tyr Gln Leu Ser Ser Arg Asp Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Gly
                 85                  90                  95
 Thr His Trp Pro Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
             100                 105                 110
```

<210> 58
<211> 112
<212> PRT
<213> Homo sapiens

<400> 58
Asp Ile Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Gly Leu Val Tyr Ser
20 25 30
Asp Gly Asp Thr Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
35 40 45
Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Gly Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Gly
85 90 95
Thr His Trp Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 59
<211> 111
<212> PRT
<213> Homo sapiens

<400> 59
Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30
Asp Gly Asn Thr Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
35 40 45
Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Gly
85 90 95
Thr His Trp Pro Phe Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile
100 105 110

<210> 60
<211> 112
<212> PRT
<213> Homo sapiens

<400> 60
Ala Glu Glu Leu Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu Leu Ser
20 25 30
Asp Gly Asp Thr Tyr Leu Asn Trp Tyr Gln Gln Arg Pro Gly Gln Ser
35 40 45
Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
50 55 60

```
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Gly
                 85                  90                  95
 Ala His Trp Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
             100                 105                 110

<210> 61
<211> 112
<212> PRT
<213> Homo sapiens

<400> 61
 Asp Val Val Leu Thr Gln Ser Pro Leu Ser Leu Ser Val Thr Leu Gly
  1               5                  10                  15
 Gln Pro Ala Ser Ile Ser Cys Arg Ser Thr Gln Ile Leu Val Phe Ser
             20                  25                  30
 Asp Gly Asn Thr Tyr Leu Asn Trp Phe Gln Gln Thr Pro Gly His Ser
         35                  40                  45
 Pro Arg Arg Leu Ile Tyr Arg Val Ser Asn Arg Asp Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Gly
                 85                  90                  95
 Thr His Trp Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
             100                 105                 110

<210> 62
<211> 112
<212> PRT
<213> Homo sapiens

<400> 62
 Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
  1               5                  10                  15
 Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val Phe Ser
             20                  25                  30
 Asp Gly Asn Thr Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
         35                  40                  45
 Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Ile Tyr Tyr Cys Met Gln Gly
                 85                  90                  95
 Ala His Trp Pro Leu Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Thr
             100                 105                 110

<210> 63
<211> 113
<212> PRT
<213> Homo sapiens

<400> 63
 Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
  1               5                  10                  15
```

```
 Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
                20                  25                  30
 Asp Gly Asn Thr Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
            35                  40                  45
 Pro Arg Arg Leu Ile Tyr Arg Val Ser Asn Arg Asp Ser Gly Val Pro
        50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Leu Tyr Tyr Cys Met Gln His
                85                  90                  95
 Thr His Trp Ser Pro Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile
            100                 105                 110
 Lys
```

<210> 64
<211> 113
<212> PRT
<213> Homo sapiens

<400> 64

```
 Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Pro Gly
  1               5                  10                  15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu His Ser
            20                  25                  30
 Asp Gly Lys Thr Tyr Leu Tyr Trp Tyr Leu Gln Lys Pro Gly Gln Pro
        35                  40                  45
 Pro Gln Leu Leu Ile Tyr Glu Val Ser Asn Arg Phe Ser Gly Val Pro
    50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Ser
                85                  90                  95
 Val Gln Leu Pro Arg Phe Thr Phe Gly Pro Gly Thr Lys Val Asp Ile
            100                 105                 110
 Lys
```

<210> 65
<211> 113
<212> PRT
<213> Homo sapiens

<400> 65

```
 Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Pro Gly
  1               5                  10                  15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu His Ser
            20                  25                  30
 Asp Gly Lys Thr Tyr Leu Tyr Trp Tyr Leu Gln Lys Pro Gly Gln Pro
        35                  40                  45
 Pro Gln Leu Leu Ile Tyr Glu Val Ser Asn Arg Phe Ser Gly Val Pro
    50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Ser
                85                  90                  95
```

Ile Gln Leu Pro Arg Phe Thr Phe Gly Pro Gly Thr Lys Val Asp Ile
100 105 110
Lys

<210> 66
<211> 112
<212> PRT
<213> Homo sapiens

<400> 66
Ala Glu Glu Leu Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val Tyr Ser
20 25 30
Asp Gly Asn Thr Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
35 40 45
Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Gly
85 90 95
Thr His Trp Pro Lys Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105 110

<210> 67
<211> 112
<212> PRT
<213> Homo sapiens

<400> 67
Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
1 5 10 15
Gln Ser Ala Ser Ile Ser Cys Thr Ser Ser Gln Ser Leu Val Tyr Thr
20 25 30
Asp Gly Lys Ile Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
35 40 45
Pro Arg Arg Leu Ile Phe Lys Val Ser Asn Arg Asp Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Ala Ile Tyr Tyr Cys Met Gln Gly
85 90 95
Thr His Trp Pro Gly Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105 110

<210> 68
<211> 113
<212> PRT
<213> Homo sapiens

<400> 68
Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Thr Pro Gly
1 5 10 15
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu Asp Ser
20 25 30

```
 Gly Asp Gly Asn Thr Tyr Leu Asn Trp Tyr Leu Gln Lys Ala Gly Gln
         35                  40                  45
 Ser Pro Gln Leu Leu Ile Tyr Thr Leu Ser Tyr Arg Ala Ser Gly Val
     50                  55                  60
 Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys
 65                  70                  75                  80
 Ile Ser Arg Val Gln Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln
                 85                  90                  95
 Arg Leu Glu Ile Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
             100                 105                 110
 Arg
```

<210> 69
<211> 112
<212> PRT
<213> Homo sapiens

<400> 69

```
 Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Thr Leu Gly
  1               5                  10                  15
 Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Arg Gly Leu Val His Ser
             20                  25                  30
 Asp Gly Asn Thr Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
         35                  40                  45
 Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Ala Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Ser
                 85                  90                  95
 Ile His Trp Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
             100                 105                 110
```

<210> 70
<211> 112
<212> PRT
<213> Homo sapiens

<400> 70

```
 Asp Ile Val Leu Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
  1               5                  10                  15
 Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Asn Leu Val Tyr Ser
             20                  25                  30
 Asp Gly Asn Thr Tyr Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
         35                  40                  45
 Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro
     50                  55                  60
 Asp Ser Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Ile Tyr Tyr Cys Met Gln Gly
                 85                  90                  95
 Thr Arg Trp Pro Tyr Thr Phe Gly Glu Gly Thr Lys Leu Glu Ile Lys
             100                 105                 110
```

<210> 71
<211> 127

<212> PRT
<213> Homo sapiens

<400> 71
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Gly Ser
20 25 30
Thr Met His Trp Val Arg Gln Ala Ser Gly Lys Gly Leu Glu Trp Val
35 40 45
Gly Arg Ile Arg Asn Lys Asp Asn Ser Tyr Ala Thr Ala Tyr Ala Ala
50 55 60
Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Glu Asn Thr
65 70 75 80
Ala Tyr Leu Gln Met Asn Ser Leu Lys Ile Glu Asp Thr Ala Val Tyr
85 90 95
Tyr Cys Thr Arg Gly Ser Ser Met Val Arg Gly Val Asn Gly Tyr Tyr
100 105 110
Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 72
<211> 126
<212> PRT
<213> Homo sapiens

<400> 72
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ile Phe Ser Asp Tyr
20 25 30
Tyr Met Asp Trp Val Arg Gln Ala Pro Ala Lys Gly Leu Glu Trp Leu
35 40 45
Ala Arg Thr Arg Asn Lys Ala Asn Ser Tyr Thr Thr Glu Tyr Ala Ala
50 55 60
Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Met Asn Ser
65 70 75 80
Leu Ser Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Ile Tyr
85 90 95
Tyr Cys Val Cys Val Arg Thr Asp Cys Ser Ser Thr Arg Cys His Gly
100 105 110
Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 73
<211> 126
<212> PRT
<213> Homo sapiens

<400> 73
Glu Val Gln Leu Val Asp Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp His
20 25 30
Tyr Met Asp Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

```
 Gly Arg Ile Arg Asn Lys Ala Asn Ser Tyr Thr Thr Glu Tyr Ala Ala
     50                  55                  60
 Ser Leu Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Glu Asn Ser
 65                  70                  75                  80
 Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
                 85                  90                  95
 Tyr Cys Ala Arg Ala Glu Thr Asp Arg Gly Tyr Tyr Tyr Tyr His Gly
             100                 105                 110
 Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
         115                 120                 125

<210> 74
<211> 126
<212> PRT
<213> Homo sapiens

<400> 74
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
  1               5                  10                  15
 Ser Leu Lys Val Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Gly Ser
             20                  25                  30
 Ala Met His Trp Val Arg Gln Ala Ser Gly Lys Gly Leu Glu Trp Val
         35                  40                  45
 Gly Arg Ile Arg Ser Lys Ala Asn Ser Tyr Ala Thr Ala Tyr Ala Ala
     50                  55                  60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
 65                  70                  75                  80
 Ala Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
                 85                  90                  95
 Tyr Cys Thr Arg Trp Val Leu Gly Arg Gly Ser Glu Gly His Tyr Tyr
             100                 105                 110
 Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
         115                 120                 125

<210> 75
<211> 115
<212> PRT
<213> Homo sapiens

<400> 75
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
  1               5                  10                  15
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Gly Ser
             20                  25                  30
 Ala Ile His Trp Val Arg Gln Ala Ser Gly Lys Gly Leu Glu Trp Val
         35                  40                  45
 Gly His Ile Arg Asn Lys Pro Asn Asn Tyr Ala Thr Ala Tyr Ala Ala
     50                  55                  60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
 65                  70                  75                  80
 Ala Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
                 85                  90                  95
 Tyr Cys Ala Ser Gly Ser Tyr Leu Lys Gly Gln Gly Thr Leu Val Thr
             100                 105                 110
 Val Ser Ser
         115
```

<210> 76
<211> 125
<212> PRT
<213> Homo sapiens

<400> 76
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Lys Asp Ile Glu Asp Thr Ala Met Phe Pro Tyr Tyr Tyr Gly Met
100 105 110
Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 77
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> VARIANT
<222> (1)...(128)
<223> Xaa = Any Amino Acid

<400> 77
Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Lys Asp Arg Arg Asn Tyr Asp Phe Trp Ser Gly Xaa Tyr Tyr Tyr
100 105 110
Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 78
<211> 128
<212> PRT
<213> Homo sapiens

<220>

<221> VARIANT
<222> (1)...(128)
<223> Xaa = Any Amino Acid

<400> 78

```
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
  1               5                  10                  15
 Ser Gln Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Asn Tyr
             20                  25                  30
 Val Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45
 Ser Val Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
     50                  55                  60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Phe
 65                  70                  75                  80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95
 Ala Lys Gly Arg Val Cys Ser Gly Gly Arg Cys Tyr Pro Xaa Tyr Tyr
             100                 105                 110
 Tyr Tyr Met Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
         115                 120                 125
```

<210> 79
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> VARIANT
<222> (1)...(128)
<223> Xaa = Any Amino Acid

<400> 79

```
 Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
  1               5                  10                  15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
             20                  25                  30
 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45
 Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
     50                  55                  60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95
 Ala Lys Asp Arg Arg Asn Tyr Asp Phe Trp Ser Gly Xaa Tyr Tyr Tyr
             100                 105                 110
 Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
         115                 120                 125
```

<210> 80
<211> 116
<212> PRT
<213> Homo sapiens

<400> 80

```
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
  1               5                  10                  15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
             20                  25                  30
 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45
 Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
     50                  55                  60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95
 Ala Lys Asp Lys Gly Ser Gly Trp Tyr Trp Gly Gln Gly Thr Leu Val
             100                 105                 110
 Thr Val Ser Ser
         115
```

<210> 81
<211> 124
<212> PRT
<213> Homo sapiens

<400> 81

```
 Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
  1               5                  10                  15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
             20                  25                  30
 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45
 Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
     50                  55                  60
 Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95
 Ala Asn Asp Tyr Tyr Gly Ser Gly Arg Tyr Phe Thr Tyr Ala Thr Asp
             100                 105                 110
 Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
         115                 120
```

<210> 82
<211> 123
<212> PRT
<213> Homo sapiens

<400> 82

```
 Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
  1               5                  10                  15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
             20                  25                  30
 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45
 Ser Ala Ile Ser Gly Ser Gly Tyr Thr Thr Tyr Tyr Ala Asp Ser Val
     50                  55                  60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80
```

```
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95
 Ala Lys Lys Pro Gly Asp Tyr Gly Ser Gly Ser Tyr Tyr Leu Asp Tyr
            100                 105                 110
 Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
        115                 120
```

<210> 83
<211> 117
<212> PRT
<213> Homo sapiens

<400> 83

```
 Gln Val Gln Leu Val Gln Ser Gly Gly Gly Leu Val Gln Pro Gly Arg
  1               5                  10                  15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr
            20                  25                  30
 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
 Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
    50                  55                  60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
 65                  70                  75                  80
 Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95
 Thr Thr Tyr Tyr Gly Asp Gly Met Asp Val Trp Gly Lys Gly Thr Met
            100                 105                 110
 Ile Thr Val Ser Ser
        115
```

<210> 84
<211> 125
<212> PRT
<213> Homo sapiens

<400> 84

```
 Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
  1               5                  10                  15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr
            20                  25                  30
 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
 Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
    50                  55                  60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95
 Ala Lys Ala Val Val Arg Gly Val Ile Ser Tyr Tyr Tyr Tyr Gly Met
            100                 105                 110
 Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 85
<211> 120
<212> PRT
<213> Homo sapiens

<400> 85
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Lys Ser Pro Asp Val Val Val Pro Ala Ala Asp Tyr Trp Gly Gln
100 105 110
Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 86
<211> 128
<212> PRT
<213> Homo sapiens

<400> 86
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ile Phe Ser Thr Gly
20 25 30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Gly Arg Ile Lys Ser Lys Thr Asp Gly Gly Thr Ile Asp Tyr Ala Glu
50 55 60
Pro Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
65 70 75 80
Leu Phe Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
85 90 95
Tyr Cys Thr Thr Ala Leu Thr Arg Tyr Phe Phe Asp Ser Ser Gly Tyr
100 105 110
Pro His Phe Asp His Trp Gly His Gly Thr Leu Val Thr Val Ser Ser
115 120 125

<210> 87
<211> 127
<212> PRT
<213> Homo sapiens

<400> 87
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Ala Ile Ser Gly Ser Asp Gly Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

```
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95
 Ala Lys Asp Arg Thr Pro Arg Asn Ile Val Ala Thr Lys Gly Met Asp
            100                 105                 110
 Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser
        115                 120                 125

<210> 88
<211> 119
<212> PRT
<213> Homo sapiens

<400> 88
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg
  1               5                  10                  15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
            20                  25                  30
 Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
 Ser Gly Ile Ser Trp Asn Ser Gly Ser Ile Gly Tyr Ala Asp Ser Val
    50                  55                  60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
 65                  70                  75                  80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Leu Tyr Tyr Cys
                 85                  90                  95
 Ala Thr His Tyr Tyr Tyr Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly
            100                 105                 110
 Thr Thr Val Thr Val Ser Ser
        115

<210> 89
<211> 124
<212> PRT
<213> Homo sapiens

<400> 89
 Gln Val Gln Leu Val Gln Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
  1               5                  10                  15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
            20                  25                  30
 Ala Met Ser Trp Val His Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
 Ala Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
    50                  55                  60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95
 Ala Arg Gly Trp Gly Leu Arg Gly Glu Glu Gly Asp Tyr Tyr Met Asp
            100                 105                 110
 Val Trp Gly Lys Gly Thr Met Val Thr Val Ser Ser
        115                 120

<210> 90
<211> 124
<212> PRT
<213> Homo sapiens
```

<400> 90
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Ala
20 25 30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Gly Arg Ile Lys Ser Lys Thr Asp Gly Gly Thr Thr Asp Tyr Ala Ala
50 55 60
Pro Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
65 70 75 80
Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
85 90 95
Tyr Cys Thr Thr Pro His Thr Phe Gly Gly Val Ile Val Ile Ser Asp
100 105 110
Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 91
<211> 123
<212> PRT
<213> Homo sapiens

<400> 91
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Arg Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Ala
20 25 30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Gly Arg Ile Lys Ser Lys Thr Asp Gly Gly Thr Thr Asp Tyr Ala Ala
50 55 60
Pro Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
65 70 75 80
Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
85 90 95
Tyr Cys Thr Thr Ala Ser Tyr Ser Tyr Gly Arg Gly Cys Phe Asp Tyr
100 105 110
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 92
<211> 121
<212> PRT
<213> Homo sapiens

<400> 92
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

```
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95
 Ala Lys Asp Ile Ser Trp Gly Asp Leu Glu Gly Leu Asp Tyr Trp Gly
            100                 105                 110
 Gln Gly Thr Leu Val Thr Val Ser Ser
        115                 120
```

<210> 93
<211> 119
<212> PRT
<213> Homo sapiens

<400> 93

```
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
  1               5                  10                  15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Ala
            20                  25                  30
 Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
 Gly Arg Ile Lys Ser Lys Thr Asp Gly Gly Thr Thr Asp Tyr Ala Ala
    50                  55                  60
 Pro Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
 65                  70                  75                  80
 Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
                 85                  90                  95
 Tyr Cys Thr Thr Asp Ser Leu Pro Pro His Arg Val Trp Gly Gln Gly
            100                 105                 110
 Thr Leu Val Thr Val Ser Ser
        115
```

<210> 94
<211> 123
<212> PRT
<213> Homo sapiens

<400> 94

```
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
  1               5                  10                  15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Ala
            20                  25                  30
 Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
 Gly Arg Ile Lys Ser Lys Thr Asp Gly Gly Thr Thr Asp Tyr Ala Ala
    50                  55                  60
 Pro Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
 65                  70                  75                  80
 Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
                 85                  90                  95
 Tyr Cys Thr Thr Ser Ile Pro Gly Ile Ala Val Ala Gly Thr Asp Tyr
            100                 105                 110
 Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
        115                 120
```

<210> 95
<211> 426
<212> DNA
<213> Mus musculus

<400> 95
atgaagttgc ctgttaggct gttggtgctc tggattcggg agacaatcgg cgatgttgtg 60
atgacccaga ctccactcac tttgtcggtt accgttggac acccagcctc catctcttgc 120
aagtcaagtc agagcctctt agatagtgat ggaaagacat ttttgaattg gttgttacag 180
aggccaggcc agtctccaaa gcgcctaatc tatctggtgt ctaaactgga ctctggagtc 240
cctgacaggt tcactggcag tggatcaggg acagatttca cactgaaaat cagcagagtg 300
gaggctgagg atttgggagt ttattattgc tggcaaggta cacattttcc gtacacgttc 360
ggaggggga ccaagctgga aataaaacgg gctgatgctg caccaactgt atccatcttc 420
ccacca 426

<210> 96
<211> 443
<212> DNA
<213> Mus musculus

<400> 96
atggacttcg ggttaaactt ggttttcttt gttgtttttt atcaaggtgt gcattgtgag 60
gtgcagcttg ttgagtctgg aggaggattg gtgcagccta aagggtcatt gaaactctca 120
tgtgcagcct ctggattcag cttcaatgcc tacgccatga actgggtccg ccaggctcca 180
ggaaagggtt tggaatgggt tgctcgcata agaactaaaa ataataatta tgcaacatat 240
tatgccgatt cagtgaaaga cagatacacc atctccagag atgattcaga aagtatgctc 300
tttctgcaaa tgaacaactt gaaaactgag gacacagcca tgtattactg tgtgaccttt 360
tacggtaacg gtgtctgggg cacagggacc acggtcaccg tctcctcagc caaaacaaca 420
gccccatccg tctatccccc ggt 443

<210> 97
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized heavy chain

<400> 97
gaggtgcaat tggttgagtc tggaggagga ttggtgaagc ctgggggggtc attgagactc 60
tcatgtgcag cctctggatt cactttcagt gcctacgcca tgaactgggt ccgccaggct 120
ccaggaaagg gtttggaatg ggttggccgc ataagaacta aaaataataa ttatgcaaca 180
tattatgccg attcagtgaa agacagattc accatctcca gagatgattc aaaaaacacg 240
ctctatctgc aaatgaacag cttgaaaact gaggacacag ccgtgtatta ctgtaccacc 300
ttttacggta acggtgtctg gggccagggg accctggtca ccgtcagctc agccaaa 357

<210> 98
<211> 344
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized light chain

<400> 98
ctacgtagtg atgacccagt ctccactctc cttgcccgtt acccttggac agccagcctc 60
catctcttgc aagtcaagtc agagcctctt agatagtgat ggaaagacat ttttgaattg 120
gtttcagcag aggccaggcc agtctccaag gcgcctaatc tatctggtgt ctaaactgga 180
ctctggagtc cctgacaggt tcagcggcag tggatcaggg acagatttca cactgaaaat 240
cagcagagtg gaggctgagg atgttggagt ttattattgc tggcaaggta cacattttcc 300
gtacacgttc ggacaaggga cccgactgga aataaaacgt acgg 344

<210> 99
<211> 443
<212> DNA
<213> Mus musculus

<400> 99
accaggggat agacggatgg ggctgttgtt ttggctgagg agacggtgac cgtggtccct 60
gtgccccaga caccgttacc gtaaaaggtc acacagtaat acatggctgt gtcctcagtt 120
ttcaagttgt tcatttgcag aaagagcata ctttctgaat catctctgga gatggtgtat 180
ctgtctttca ctgaatcggc ataatatgtt gcataattat tatttttagt tcttatgcga 240
gcaacccatt ccaaaccctt tcctggagcc tggcggaccc agttcatggc gtaggcattg 300
aagctgaatc cagaggctgc acatgagagt ttcaatgacc ctttaggctg caccaatcct 360
cctccagact caacaagctg cacctcacaa tgcacacctt gataaaaaac aacaaagaaa 420
accaagttta acccgaagtc cat 443

<210> 100
<211> 148
<212> PRT
<213> Mus musculus

<400> 100
Met Asp Phe Gly Leu Asn Leu Val Phe Phe Val Val Phe Tyr Gln Gly
1 5 10 15
Val His Cys Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln
20 25 30
Pro Lys Gly Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe
35 40 45
Asn Ala Tyr Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
50 55 60
Glu Trp Val Ala Arg Ile Arg Thr Lys Asn Asn Asn Tyr Ala Thr Tyr
65 70 75 80
Tyr Ala Asp Ser Val Lys Asp Arg Tyr Thr Ile Ser Arg Asp Asp Ser
85 90 95
Glu Ser Met Leu Phe Leu Gln Met Asn Asn Leu Lys Thr Glu Asp Thr
100 105 110
Ala Met Tyr Tyr Cys Val Thr Phe Tyr Gly Asn Gly Val Trp Gly Thr
115 120 125
Gly Thr Thr Val Thr Val Ser Ser Ala Lys Thr Thr Ala Pro Ser Val
130 135 140
Tyr Pro Leu Val
145

<210> 101
<211> 426
<212> DNA
<213> Mus musculus

<400> 101
tggtgggaag atggatacag ttggtgcagc atcagcccgt tttatttcca gcttggtccc 60
ccctccgaac gtgtacggaa aatgtgtacc ttgccagcaa taataaactc ccaaatcctc 120
agcctccact ctgctgattt tcagtgtgaa atctgtccct gatccactgc cagtgaacct 180
gtcagggact ccagagtcca gtttagacac cagatagatt aggcgctttg gagactggcc 240
tggcctctgt aacaaccaat tcaaaaatgt ctttccatca ctatctaaga ggctctgact 300
tgacttgcaa gagatggagg ctgggtgtcc aacggtaacc gacaaagtga gtggagtctg 360
ggtcatcaca acatcgccga ttgtctcccg aatccagagc accaacagcc taacaggcaa 420
cttcat 426

<210> 102
<211> 142
<212> PRT
<213> Mus musculus

<400> 102

Met	Lys	Leu	Pro	Val	Arg	Leu	Leu	Val	Leu	Trp	Ile	Arg	Glu	Thr	Ile
1				5				10					15		
Gly	Asp	Val	Val	Met	Thr	Gln	Thr	Pro	Leu	Thr	Leu	Ser	Val	Thr	Val
		20					25					30			
Gly	His	Pro	Ala	Ser	Ile	Ser	Cys	Lys	Ser	Ser	Gln	Ser	Leu	Leu	Asp
	35					40					45				
Ser	Asp	Gly	Lys	Thr	Phe	Leu	Asn	Trp	Leu	Leu	Gln	Arg	Pro	Gly	Gln
50					55					60					
Ser	Pro	Lys	Arg	Leu	Ile	Tyr	Leu	Val	Ser	Lys	Leu	Asp	Ser	Gly	Val
65				70					75					80	
Pro	Asp	Arg	Phe	Thr	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys
			85					90					95		
Ile	Ser	Arg	Val	Glu	Ala	Glu	Asp	Leu	Gly	Val	Tyr	Tyr	Cys	Trp	Gln
		100					105					110			
Gly	Thr	His	Phe	Pro	Tyr	Thr	Phe	Gly	Gly	Gly	Thr	Lys	Leu	Glu	Ile
	115					120					125				
Lys	Arg	Ala	Asp	Ala	Ala	Pro	Thr	Val	Ser	Ile	Phe	Pro	Pro		
130					135					140					

<210> 103
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized heavy chain

<400> 103

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tttggctgag ctgacggtga ccagggtccc ctggccccag acaccgttac cgtaaaaggt      60
ggtacagtaa tacacggctg tgtcctcagt tttcaagctg ttcatttgca gatagagcgt     120
gttttttgaa tcatctctgg agatggtgaa tctgtctttc actgaatcgg cataatatgt     180
tgcataatta ttatttttag ttcttatgcg gccaacccat tccaaaccct ttcctggagc     240
ctggcggacc cagttcatgg cgtaggcact gaaagtgaat ccagaggctg cacatgagag     300
tctcaatgac cccccaggct tcaccaatcc tcctccagac tcaaccaatt gcacctc        357
```

<210> 104
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized heavy chain

<400> 104

Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Lys	Pro	Gly	Gly
1				5				10					15		
Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Ala	Tyr
		20					25					30			
Ala	Met	Asn	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val
	35					40					45				

```
 Gly Arg Ile Arg Thr Lys Asn Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
     50                  55                  60
 Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr
 65                  70                  75                  80
 Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
                 85                  90                  95
 Tyr Cys Thr Thr Phe Tyr Gly Asn Gly Val Trp Gly Gln Gly Thr Leu
             100                 105                 110
 Val Thr Val Ser Ser Ala Lys
         115
```

<210> 105
<211> 344
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized light chain

<400> 105

```
ccgtacgttt tatttccagt cgggtccctt gtccgaacgt gtacggaaaa tgtgtacctt      60
gccagcaata ataaactcca acatcctcag cctccactct gctgattttc agtgtgaaat     120
ctgtccctga tccactgccg ctgaacctgt cagggactcc agagtccagt ttagacacca     180
gatagattag gcgccttgga gactggcctg gcctctgctg aaaccaattc aaaaatgtct     240
ttccatcact atctaagagg ctctgacttg acttgcaaga gatggaggct ggctgtccaa     300
gggtaacggg caaggagagt ggagactggg tcatcactac gtag                      344
```

<210> 106
<211> 114
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized light chain

<400> 106

```
 Tyr Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
  1               5                  10                  15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
             20                  25                  30
 Asp Gly Lys Thr Phe Leu Asn Trp Phe Gln Gln Arg Pro Gly Gln Ser
         35                  40                  45
 Pro Arg Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
     50                  55                  60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65                  70                  75                  80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Trp Gln Gly
                 85                  90                  95
 Thr His Phe Pro Tyr Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
             100                 105                 110
 Arg Thr
```

<210> 107
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence

<400> 107

Asp	Val	Val	Met	Thr	Gln	Ser	Pro	Leu	Ser	Leu	Pro	Val	Thr	Leu	Gly
1				5				10						15	
His	Pro	Ala	Ser	Ile	Ser	Cys	Lys	Ser	Ser	Gln	Ser	Leu	Leu	Asp	Ser
			20					25					30		
Asp	Gly	Lys	Thr	Phe	Leu	Asn	Trp	Leu	Leu	Gln	Arg	Pro	Gly	Gln	Ser
		35					40					45			
Pro	Arg	Arg	Leu	Ile	Tyr	Leu	Val	Ser	Lys	Leu	Asp	Ser	Gly	Val	Pro
	50					55					60				
Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile
65					70					75					80
Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val	Tyr	Tyr	Cys	Trp	Gln	Gly
				85					90					95	
Thr	His	Phe	Pro	Tyr	Thr	Phe	Gly	Gln	Gly	Thr	Arg	Leu	Glu	Ile	Lys
			100					105					110		